

Agenda

Warm-up

Notes

Homework

Objective

You will identify

the x and y

intercepts of
graphs, tables,

and equations.

$$\frac{4b+b}{4a-a}$$

X and Y Intercepts

You need your graphing calculator and at least 2 colors today

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Warm-up

Remember your slope formula!!

- Find the slope of the line connecting the points $(2, 3k)$ and $(1, 2k)$.

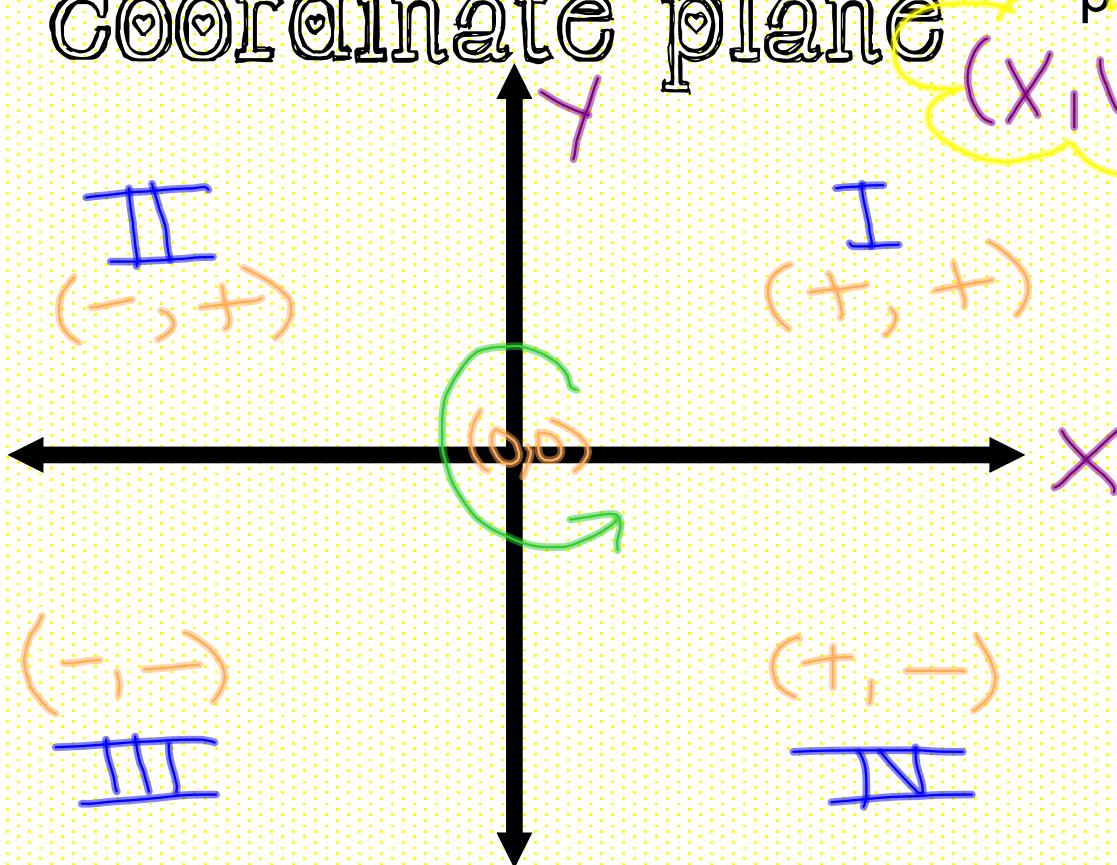
$$m = \frac{x_1 y_1 - x_2 y_2}{x_1 - x_2} = \frac{2k - 3k}{1 - 2} = \frac{-1k}{-1} = k$$

- Find the slope of the line connecting the points $(4a, 4b)$ and $(a, -b)$

$$m = \frac{x_1 y_1 - x_2 y_2}{x_1 - x_2} = \frac{-b - 4b}{a - 4a} = \frac{-5b}{-3a} = \frac{5b}{3a}$$

Coordinate plane

p.49



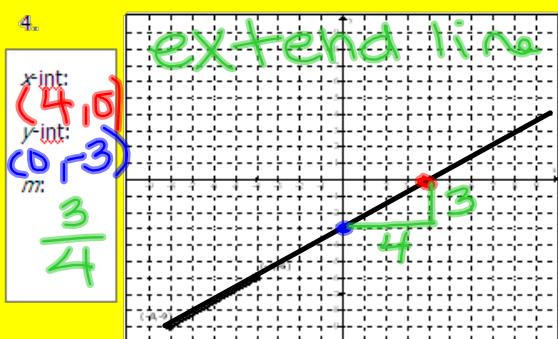
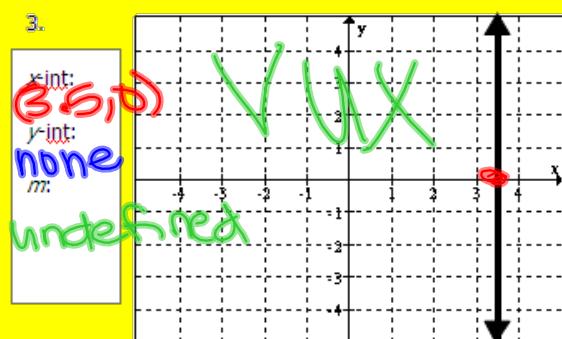
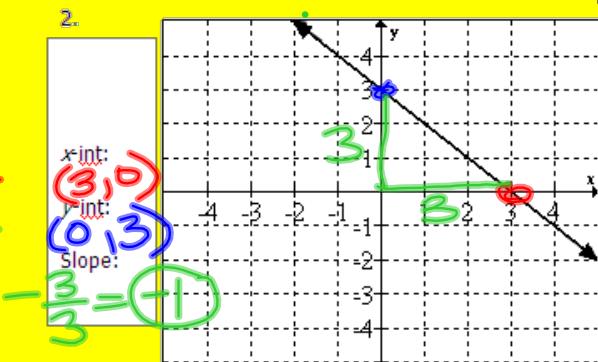
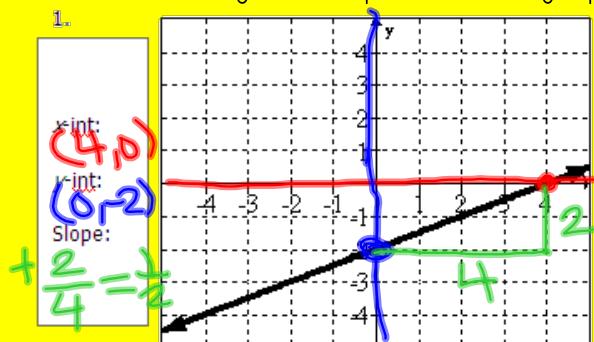
~~Think:~~ What does it mean to get an interception in football?



Fold your paper in half, glue onto page 50.

- The x-intercept, zero of a function, is the point where a graph crosses or intersects the $(x, 0)$ $x\text{-axis}$
- The y-intercept is the point where a graph crosses or intersects the $y\text{-axis}$ $(0, y)$

Find the x and y-intercepts of each graph. Be sure to write each as an ordered pair.



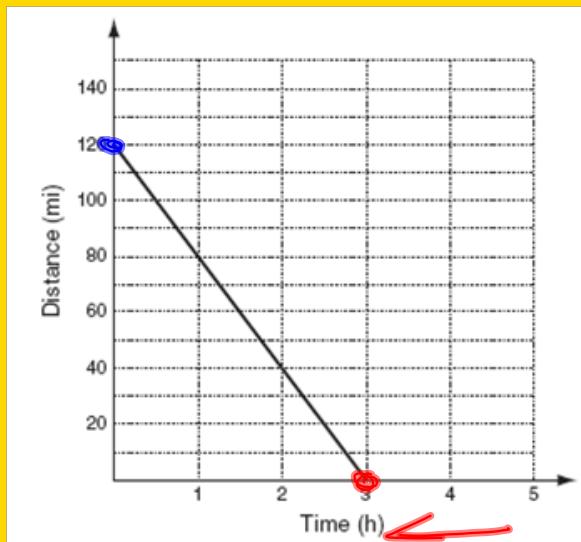
q. The volleyball team is traveling to a game 120 miles away. Their average speed is 40 mph. The graphed line describes the distance left to travel at any time during the trip. Find the x and y-intercepts and state what each represents.

$x\text{-int: } (3, 0)$

They got to game
in 3 hours.

$y\text{-int: } (0, 120)$

They start 120 mi
away from game



10. Find the x-intercept and the y-intercept, then graph problems "a" and "b" using the intercepts.

COVER UP METHOD.

a. $\frac{1}{2}x - 2y = -4$

$$\begin{aligned}\frac{1}{2}x - 2y &= -4 \\ 2 \cdot \frac{1}{2}x - 2y &= -4 \cdot 2 \\ x - 4y &= -8 \\ x &= -8\end{aligned}$$

COVER UP y.
x-intercept $(-8, 0)$
y-intercept $(0, 2)$

COVER UP X

b. $-4y = 3x - 12$

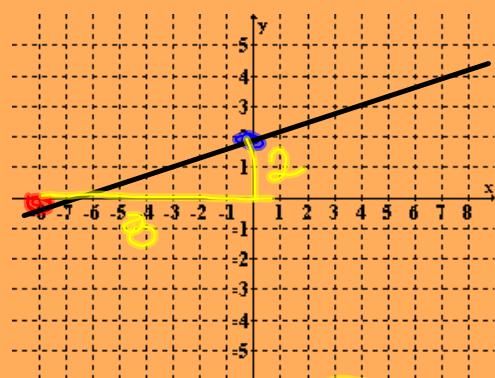
$$\begin{aligned}-4y &= 3x - 12 \\ 0 &= 3x - 12 \\ +12 &= +12 \\ \frac{12}{3} &= \frac{3x}{3} \\ 4 &= x\end{aligned}$$

x-intercept $(4, 0)$
y-intercept $(0, 3)$

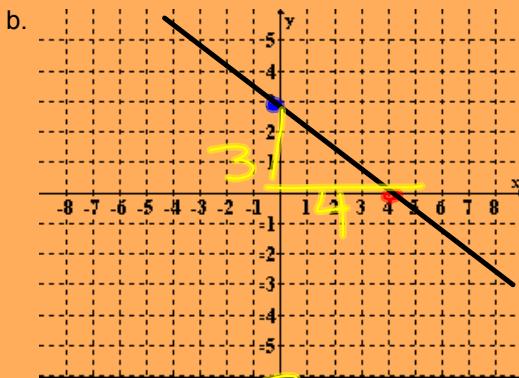
c. $y = 3x - 9$

$$\begin{aligned}0 &= 3x - 9 \\ 9 &= 3x \\ 3 &= x\end{aligned}$$

x-intercept $(3, 0)$
y-intercept $(0, -9)$



$$m: \frac{+2}{8} = \boxed{\frac{1}{4}}$$



$$\text{Slope: } -\frac{3}{4}$$

Find the x and y-intercepts and the slope from the table of values or the equation

$x\text{-int}$
 $y=0$

6.

$(x, 0)$ $y\text{-int} (0, y)$

CALCULATOR
find eq'n.

5.

| x | y |
|----|-----|
| -9 | -10 |
| -6 | -5 |
| -3 | 0 |
| 0 | 5 |
| 3 | 10 |

+3

+5

| x | y |
|----|---|
| -3 | 8 |
| 0 | 6 |
| 3 | 4 |
| 6 | 2 |
| 9 | 0 |

+3

+2

| x | y_1 |
|---|----------------|
| 0 | -2 |
| 1 | $-\frac{5}{3}$ |
| 2 | $-\frac{4}{3}$ |
| 3 | -1 |
| 4 | $-\frac{2}{3}$ |
| 5 | $-\frac{1}{3}$ |
| 6 | 0 |

$x=6$

| x | y |
|----|-----|
| -8 | -15 |
| -4 | -5 |
| 4 | 15 |
| 8 | 25 |

$$y = \frac{1}{3}x + -2$$

$$y = 2.5x + 5$$

$$y = 2x + 5$$

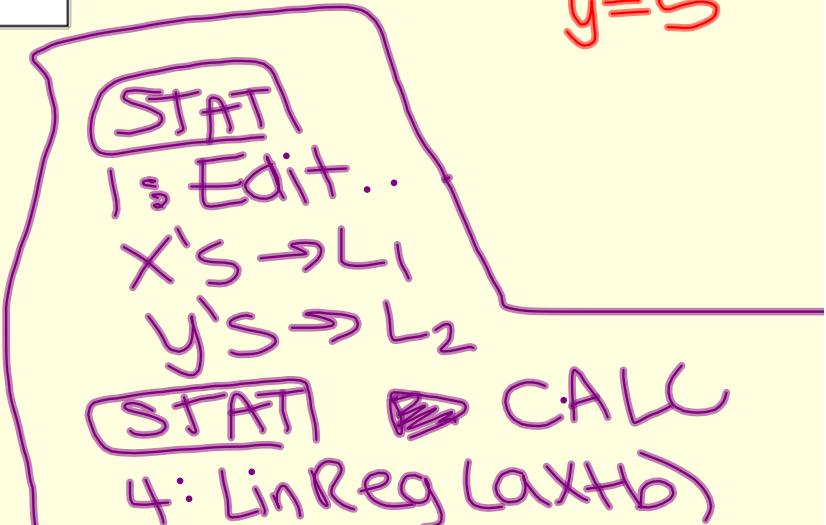
x-intercept: $(-3, 0)$
y-intercept: $(0, 15)$
Slope: $\frac{5}{3}$

x-intercept: $(9, 0)$
y-intercept: $(0, 16)$
Slope: $-\frac{2}{3}$

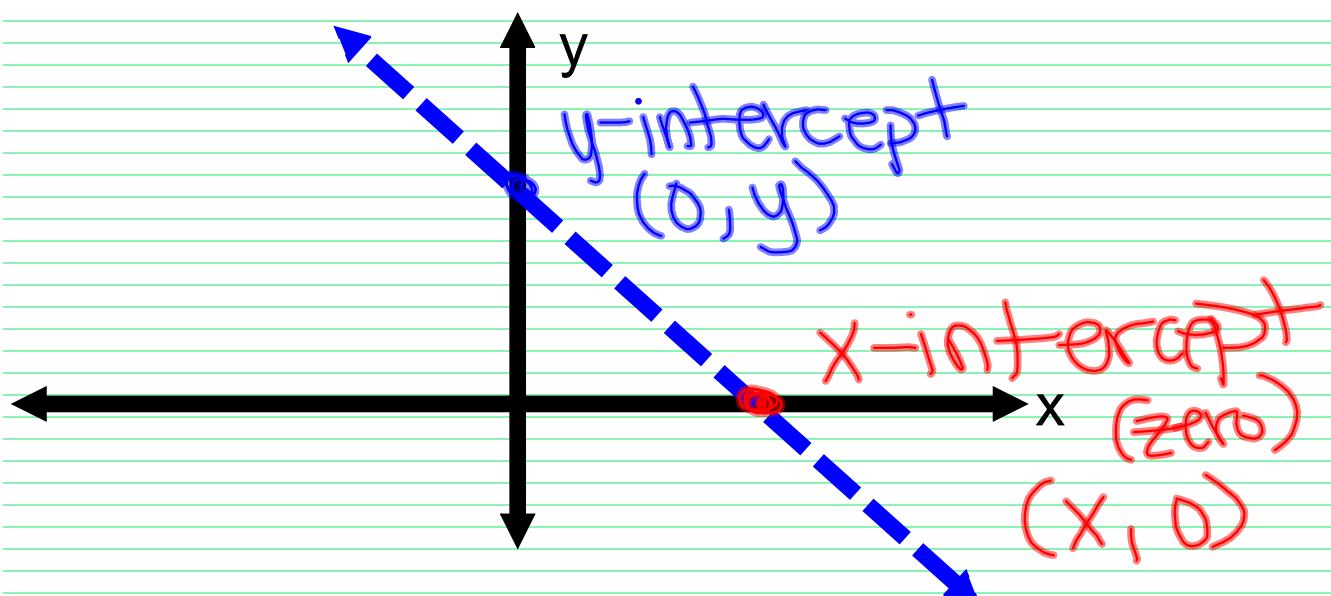
x-intercept: $(6, 0)$
y-intercept: $(0, -2)$

x-intercept:
y-intercept: $(0, 5)$

$$y = 5$$



SUMMARY



Algebra I - Unit 3: Topic 2

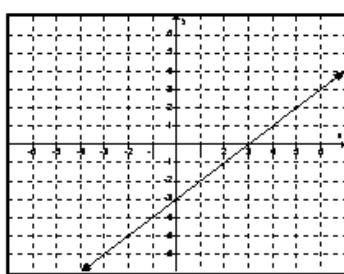
Practice – x and y-Intercepts

Name _____ Date _____ Period _____

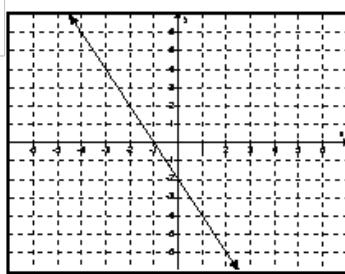
pp 303-309

Find the x and y-intercepts.

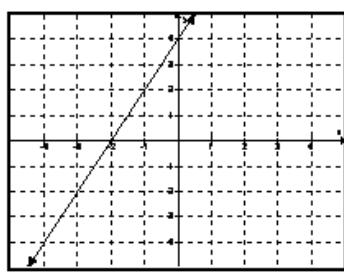
1.

x-intercept _____
y-intercept _____

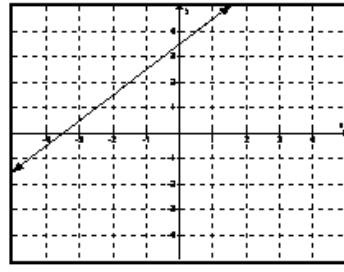
2.

• zero: _____
y-intercept _____

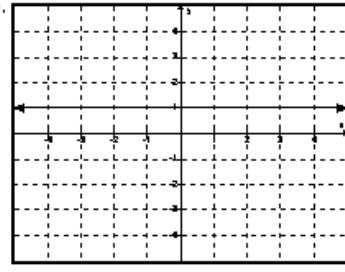
3.

x-intercept _____
y-intercept _____

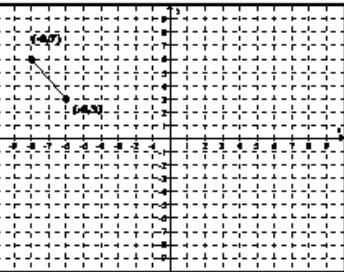
4.

• zero: _____
y-intercept _____

5.

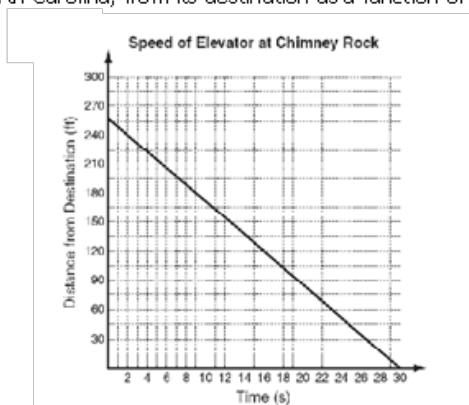
• zero: _____
y-intercept _____

6.

x-intercept _____
y-intercept _____

The graph shows the distance of an elevator at Chimney Rock, North Carolina, from its destination as a function of time. Use the graph to answer questions 7-9.

7. What is the x-intercept of this function?



8. What does the x-intercept represent?

9. What is the y-intercept for this function?

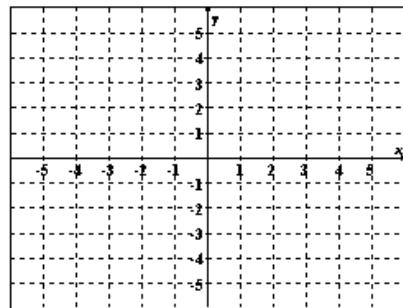
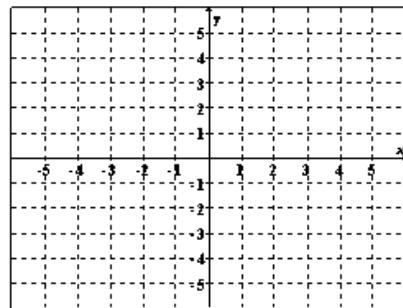
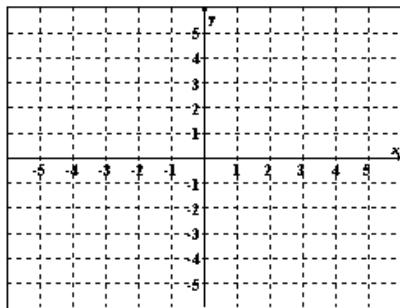
Algebra I - Unit 3: Topic 2

Find the x-intercept and y-intercept, then use them to graph the equations.

10. $3x + 9y = 9$

11. $4x = -6y - 12$

12. $y = 2x - 4$

**Find the x and y-intercepts from the table of values or the equation.**

13.

| x | y |
|----|----|
| -2 | 10 |
| 0 | 6 |
| 1 | 4 |
| 2 | 2 |
| 3 | 0 |

x-intercept: _____

y-intercept: _____

Slope: _____



| x | y |
|-----|-------|
| -21 | -3.75 |
| -18 | -1.5 |
| -4 | 9 |
| 2 | 13.5 |
| 4 | 15 |

x-intercept: _____

y-intercept: _____

m = _____

15. What is the y-intercept of the function $f(x) = \frac{1}{2}(x - 6)$?

16. Which of the following functions has 2 as a zero of the function?

- A $f(x) = x + 2$
- B $f(x) = x - 2$
- C $f(x) = 2x$
- D $f(x) = 2x + 2$